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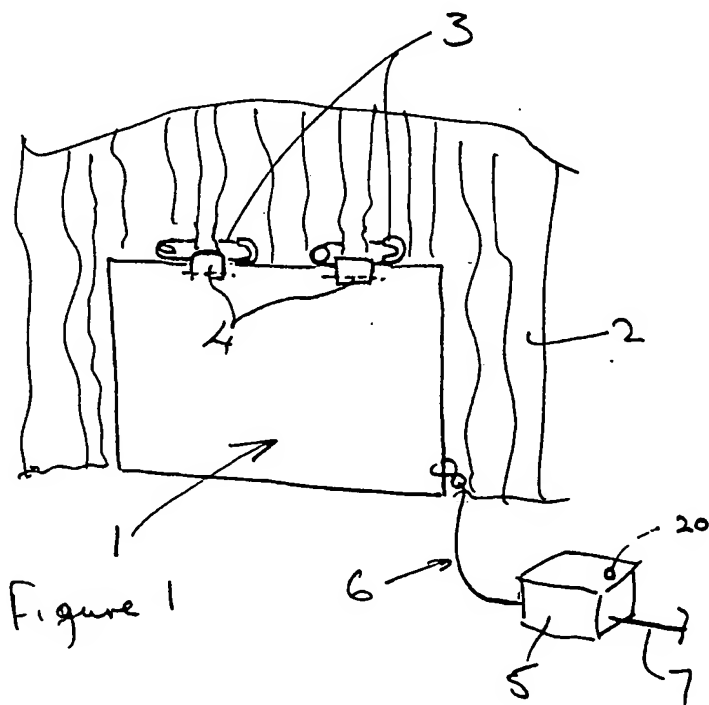
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(54) Urination deterrent device

(57) A urination deterrent device comprises a mat 1 of woven or knitted fabric including electrically conductive metal threads. Fastening means in the form of tabs 4 are sewn into one edge of the fabric, whereby the mat can be fastened to furnishing fabric 2 to hang downwardly at the position of potential urination by safety pins 3. A pulsing circuit is contained in a box 5 and supplied by a mains lead 7 and provides, in operation, a high voltage series of pulses to a lead 6 connected to the mat by a clip. A mains indicator neon 20 warns humans not to touch the mat.



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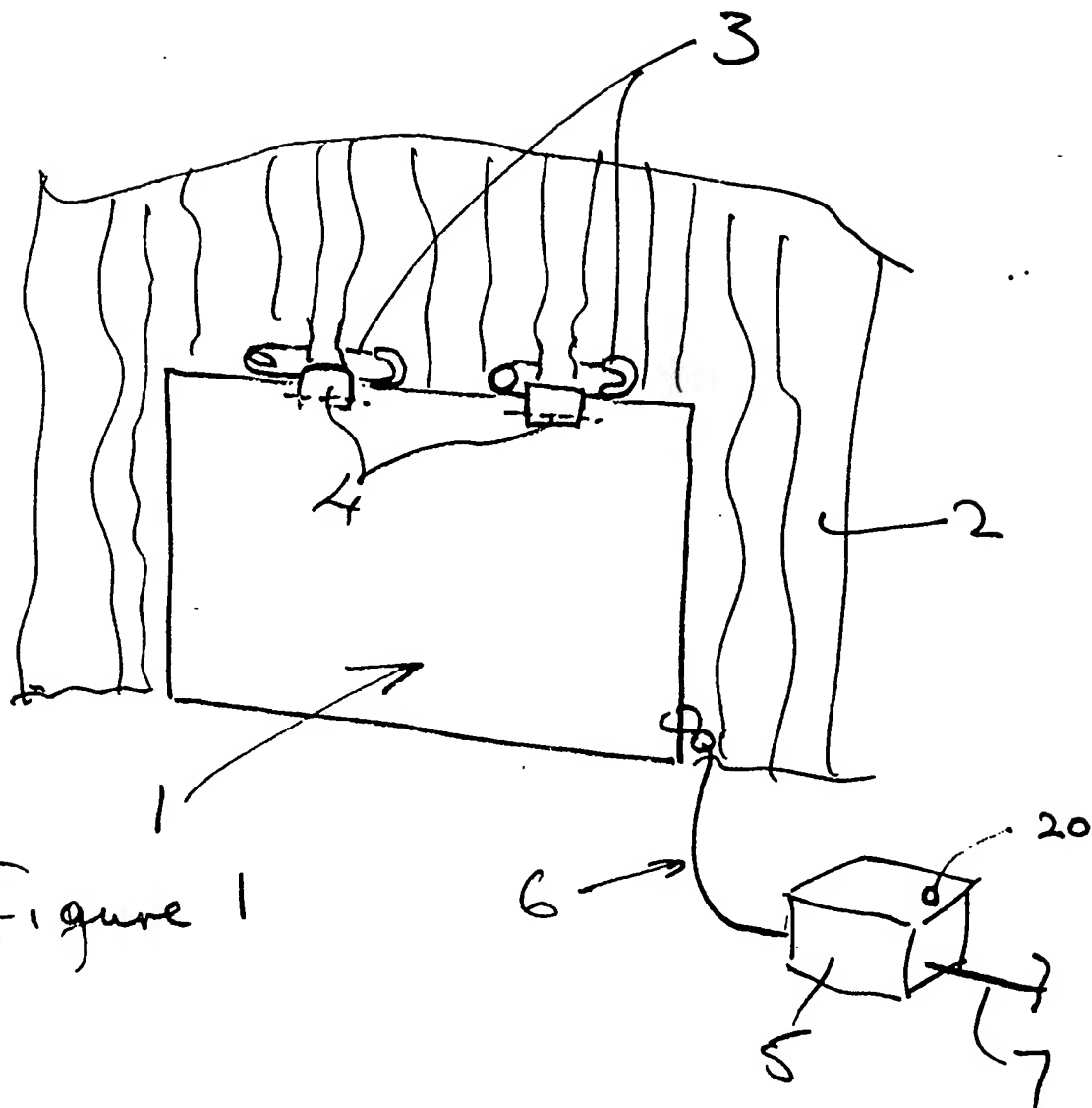
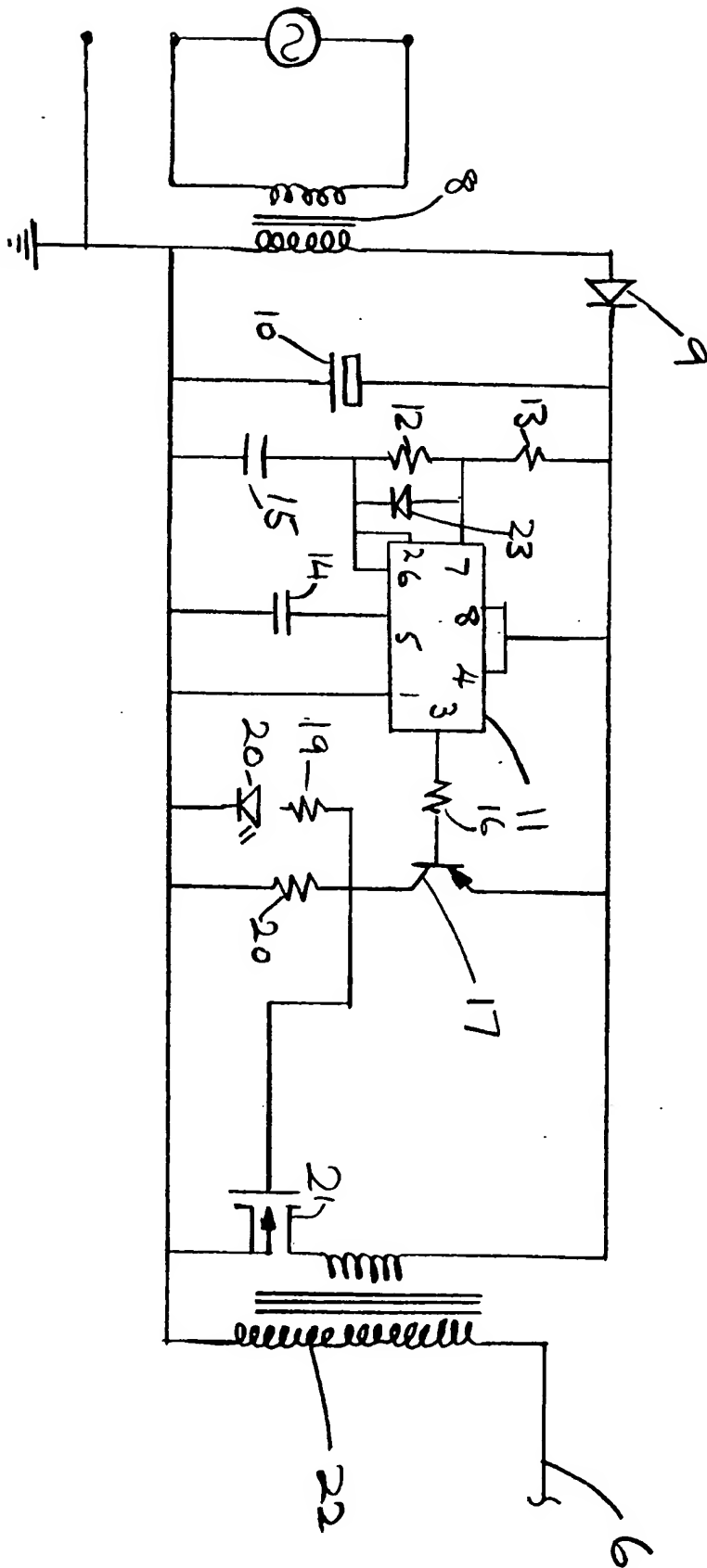


Figure 1

FIGURE 2



SPECIFICATION

Urination deterrent device

The present invention relates to a urination
5 deterrent device.

Urination by tom cats in a house can be a severe problem. Normally a cat with such a habit regularly urinates in the same place.

It has been found that it is possible to arrange an
10 electrically conductive mat in a safe manner at the place where the cat urinates and by applying voltage pulses to the mat, shock the cat and deter him from urinating there.

According to the invention there is provided a
15 urination deterrent device comprising an electrically conductive mat and means for applying voltage pulses to the mat.

Whilst it is envisaged that the mat may be an impermeate sheet, for instance of aluminium foil, it
20 is preferably of woven or knitted fabric including metal threads providing the conductivity.

The conductive mat preferably incorporates fastening means for fastening the mat to hang downwards from soft furnishings for instance —
25 where the cat urinates since tom cats urinate predominantly sideways as opposed to downwards.

To help understanding of the invention, a specific embodiment thereof will now be described by way of example and with reference to the accompanying
30 drawings, in which:—

Figure 1 is a perspective view of a urination deterrent device of the invention, and

Figure 2 is a circuit diagram of a pulsing circuit of the device of Figure 1.

35 The device shown in Figure 1 has a mat 1 of woven fabric including metal threads. It is fastened to furnishing fabric 2 by safety pins 3 secured by tabs 4 stitched to the mat.

The pulsing circuit for the device is housed in a
40 box 5 and connected to the mat by a lead and clip 6. A mains lead 7 is provided.

Figure 2 shows the pulsing circuit to include a mains input transformer 8 with associated power supply diode 9 and capacitance 10. A 555 integrated
45 circuit 11 is wired for a stable operation with associated resistances 12, 13, with values 221 K Ω and 1.5 M Ω respectively. Associated diode 23 type 1N4148 and capacitances 14 and 15 values 10 nF and 0.1 μ F determine that the circuit produces a 15
50 millisecond pulse every second. The pulse output on pin 3 is connected via resistor 16, 390 Ω to a BCY71 transistor 17.

When no high voltage pulse is being produced at 6 the transistor 17 is off and LED 18 is off and the

55 gate of the IRF120 MOSFET transistor 21 is low hence it also is off. The latter is wired in series with the primary winding of a standard car ignition coil 22. When circuit 11 pin 3 goes low for 15 milliseconds transistor 17 is switched on, the LED 18
60 is illuminated and the MOSFET 21 conducts.

During this period the current in the primary flows building up flux in the coil's core 22. When MOSFET 21 is switched off the collapsing magnetic flux induces a high voltage in the car ignition coils' secondary winding.

Clip 6 connects the high voltage to the mat.

If a cat is urinating on the mat, or touching it with its nose it will receive a shock up to a maximum of 4 mA, approximately at 10 KV. This is harmless but
70 unpleasant, no sensation will be felt by the cat when brushing against the mat with its dry fur.

A human would be shocked on touching the mat also but the mains indicator neon 20 and flashing LED 18 is a warning not to touch the mat.

CLAIMS

1. A urination deterrent device comprising an electrically conductive mat and means for applying voltage pulses to the mat.

80 2. A device as claimed in claim 1, wherein the mat is made of woven or knitted fabric including electrically conductive metal threads.

3. A device as claimed in claim 1 or 2, wherein the mat incorporates fastening means for fastening the
85 mat.

4. A device as claimed in claim 3, wherein the fastening means is such as to enable the mat to hang downwards from a support.

5. A device as claimed in any preceding claim,
90 wherein the voltage pulse applying means includes a pulsing circuit which in operation produces a series of high voltage pulses.

6. A device as claimed in claim 5, wherein the pulsing circuit is such as to be operated by mains
95 voltage and to provide an output through a transformer at high voltage.

7. A device as claimed in claim 5, or 6, wherein each pulse has a short ON period and a longer OFF period.

100 8. A urination deterrent device substantially as hereinbefore described with reference to the accompanying drawings.

9. A method of deterring urination comprising mounting the conductive mat of a device as claimed
105 in any preceding claim in a potential urinating position, connecting the voltage pulse applying means thereto, and operating the voltage pulse applying means to apply voltage pulses to the mat.

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